

INTERNATIONAL PRELIMINARY EXAMINATION REPORT



(PCT Article 36 and Rule 70)

13 DEC 2004

Applicant's or agent's file reference 20390WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL 03/00379	International filing date (day/month/year) 21.05.2003	Priority date (day/month/year) 12.06.2002
International Patent Classification (IPC) or both national classification and IPC B32B27/34		
Applicant DSM IP ASSETS B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 07.01.2004	Date of completion of this report 28.04.2004
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Okunowski, J Telephone No. +49 89 2399-8975 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL 03/00379

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/NL 03/00379**

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-5
Inventive step (IS)	Yes: Claims	
	No: Claims	1-5
Industrial applicability (IA)	Yes: Claims	1-5
	No: Claims	

2. Citations and explanations

see separate sheet

Item V

Reference is made to the following documents:

D1: EP-A-0 000 363

D2: The Oxford English Dictionary; Oxford University Press (1970); entry: "Adjacent"

D3: Th.I. Butler, TAPPI, September 1992, p. 205-211

D4: WO 00/35992

The documents D2, D3 were not cited in the international search report.

- 1 D1 discloses multilayer films containing a polyamide layer (claim 8). The main monomeric unit in the polyamide is ϵ -caprolactam (AB monomer). Other monomeric units present are adipic acid units or terephthalic acid units (page 4, lines 18-21), as well as the trifunctional comonomeric unit $H_2N-R-NH-R-NH_2$ (claim 1; page 3, line 18-page 4, line 21). The comonomeric unit quantities indicated there are such that the copolyamide satisfies formula (1) of present claim 1. Attention is also drawn to e.g. Example 1(b), where P is 0.998 and the expression $1/[(F_A-1).(F_B-1)]$ is 42.10^3 , which is considered to be higher than 0.998 (n_i expressing the number of moles). It is therefore no surprise that the copolyamide of D1 is disclosed to be intrinsically (not incidentally) gel-free (page 6, lines 5-8).

Another layer is made of polyethylene, for instance a low-density polyethylene (examples), which is, according to the terminology of the present application, a non-linear polyethylene. The whole is coextruded. The layer of polyethylene in D1 is always adjacent to the copolyamide layer. In the examples, there is a bonding layer in between, but, as is clear from the meaning of the word "adjacent" (see D2), this still falls under the scope of "adjacent".

The film of D1 is flattened, and therefore flat (as follows from page 9, line 8).

The disclosure of D1 is therefore prejudicial to the novelty of all of the present claims (Article 33(2) PCT).

- 2 Although none of the claims is novel, the following can be said with regards to inventive step. The closest prior art would seem to be represented, in view of the prior art acknowledgedment of the present application, by conventional polyamide/polyethylene flat-die coextrusion. The present application seeks to solve

the problems of layer nonuniformity illustrated in Figures 3-6 on page 207 of D3. It is to be noted that, according to D3, this problem occurs with flat die coextrusion only. D3 discloses also that this problem is due to a melt-viscosity mismatch between the polymers in the layers concerned. Solutions suggested in D3 embrace both adaptations in die design and polymer viscosity adaptation (Page 207). So, the technical problem addressed by the present application is known in the prior art, and solutions to this problem were known in the prior art as well.

The present application claims that a solution to said problem of layer nonuniformity in flat die coextrusion lies in the use of the intrinsically gel-free copolyamides of D4. However, the application offers no valid proof for this assertion, which is moreover contrary to the established understanding of the problem of layer nonuniformity in flat die coextrusion as represented by D3. According to the latter, layer uniformity in flat die coextrusion is governed by the melt viscosity of the polymers involved, and the presence of gels is therefore, in itself, irrelevant in this context (note that the present examples do also not show that the gel-free copolyamide has the same **melt** viscosity at **extrusion temperature** as the gelling polyamide: thus, the difference in layer uniformity found must be due to a difference in melt viscosity). This means that the solution arrived at in the examples is not obtained by a feature of the present claims. It is noted, furthermore, that the present claims do not limit at all the melt viscosity of the copolyamides involved. On top of that, the problem cannot merely be solved by a certain melt viscosity of the copolyamide alone, but only if this viscosity matches the melt viscosity of the other polymers involved.

The subject-matter of the present claims does therefore not offer any solution to the problem of layer non-uniformity on flat die extrusion. It does, of course, offer a solution to the problem of gel-formation and melt-fracture, but this was obvious from page 7, lines 7-29 (where the eminent suitability of the present copolyamides for flat-die extrusion is outlined) of D4, as well as from page 6 of D1 (where the same class of copolyamides are disclosed).

There would therefore not appear to be any inventive matter in the present application.